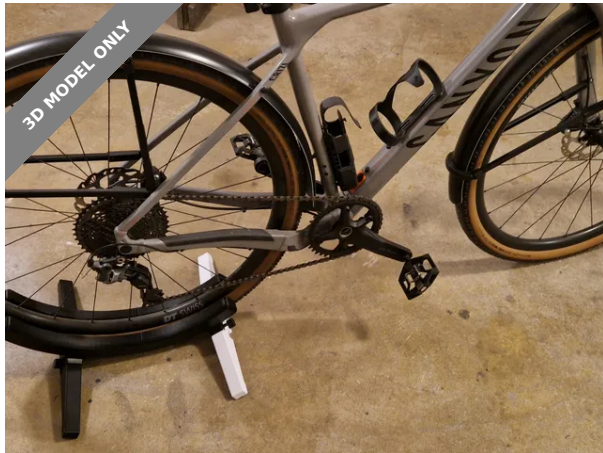




Bike stand adjustable 25-51 mm (all parts printed)

 **Huyluy**

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Summary

Bike stand with only printed parts. Wanted to learn and apply some design concepts, so some may say it's overengineered.

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Adjustable bike stand for tire width 25-51mm. All required parts are printed.

Tested with gravel bike with 29" wheel 45 mm tire width. Bike weight around 11 kg.

This is the first version of this bike stand. The bike is stored in a garage with stable temperature, humidity, and no sunlight, and after two months of use, I've yet to see any wear and tear. I used PLA for this print, but I plan to try PETG if it fails.

Print settings:

Big parts - 0.28 mm Extra draft in Bambu Studio - 0.28 mm layer height, 2 perimeter, PLA

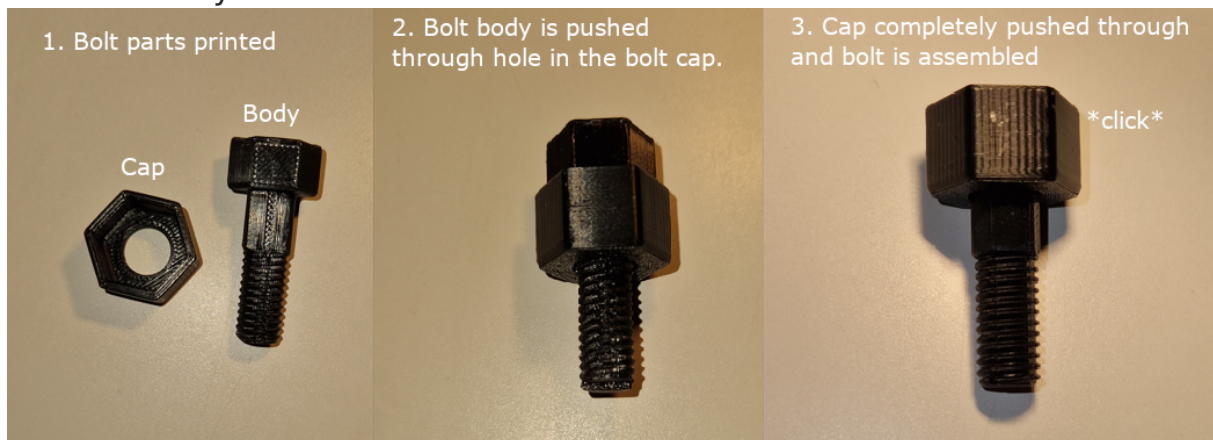
Small parts - 0.20 mm Standard in Bambu Studio - 0.20 mm layer height, 2 perimeter, PLA

Design comments:

- The bike stand is inspired by, among others, this: <https://www.amazon.co.jp/-/en/WOONEKY-Vertical-Bicycle-Parking-Freestanding/dp/B0CKG84Y32>
 - Locking mechanism is from NeedItMakIt video: <https://youtu.be/fSISiR5XIbk?feature=shared&t=164>
 - Files I used to test the locking mechanism is also included under folder "Locking design test prints".
 - Original 3D model of the bolt is from <https://www.mcmaster.com/> - part name: 94081A833_Titanium Hex Head Screw
 - Bolt is inspired by the design of Node Dojo / The Well Tarot: <https://youtube.com/shorts/LVN6QGLJ4N8?feature=shared>
- After a test print it made more sense mechanically to flip the cap, so I made a hole in it to fit the bolt body through.

This project was a nice opportunity to learn new tricks within the 3D-printing world, and I'm happy with a design where all parts are printed.

Bolt assembly:



Locking assembly shown on test prints:



Possible future works:

- Redesign for use with steel M8 bolt and nut.
- Make bolt caps easier to use as they are a bit small and does not offer a comfortable grip. Not a big problem if you don't need to adjust the bike stand regularly.

I'd love to hear your feedback :)

28.08.25: Got some feedback about the model being too big for Prusa MK3.5-MK4.0. I'm working on splitting the big parts so it can fit smaller print beds.

Part list	
Part	Qty
Stand_A	1
Stand_A_mirrored	1
Stand_B	1
Stand_B_mirrored	1

Part list	
Part	Qty
Support_A	2
Support_B	2
Pin	12
Bolt_body_A	4
Bolt_body_B	4
Bolt_head	4

Model files


Parts
11 files


bike-stand-assembly.stl


stand_a.stl


stand_a_mirrored.stl


stand_b.stl


stand_b_mirrored.stl


support_a.stl



support_b.stl



bolt_head.stl



bolt_body_b.stl



bolt_body_a.stl



pin.stl



Print files all parts

2 files



stand_and_support.3mf



bolts_and_pins.3mf



Locking design test prints

2 files



support_concept_test.3mf

☐ Print this if you want to test the pin locking mechanism for the supports.



stand_concept_test.3mf

☐ Print this if you want to test the pin locking mechanism for the stand "arc".

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